Updated July 2, 2015

Phase II Complete Streets Pilot Projects Frequently Asked Questions

The City of Boulder's Transportation Division has compiled this resource based on frequently asked questions about Phase II of Living Lab program. We will continue to update this list of questions and provide responses based on community feedback throughout Phase II.

If your question is not answered below or you would like to discuss this topic with the Living Lab project managers, please contact Marni Ratzel at 303-441-4138 or Dave "DK" Kemp at 303-441-1955.

1. **What is the Boulder Living Lab and purpose of the Phase II pilot projects?**

   Phase II of the Living Lab pilot projects will test and evaluate whether "rightsizing" street treatments will enhance travel safety for all ages and abilities, including those who drive, walk, bike, and bus. These temporary projects will utilize signs, painted pavement markings, and flexible delineators that will be easy to remove if the city determines that the experiments need to be refined or discontinued.

   The Living Lab pilot projects are an early action item for the Complete Streets focus area of the 2014 Transportation Master Plan (TMP), which is intended to achieve the community goals of providing as many travel options as possible. This approach involves fine-tuning the existing transportation system to increase access so that community members may feel safe, comfortable and confident in their travel choices, whether walking, biking, riding the bus or driving.

2. **What is the timing of Phase II pilot projects?**

   On June 15, 2015, the Boulder City Council supported the installation of three pilot projects that will temporarily repurpose vehicle lanes along three roadway segments:

   - Folsom Street from Valmont Road to Colorado Avenue;
   - Iris Avenue from Folsom Street to Broadway; and
   - 63rd Street from Lookout Road to Gunbarrel Road/Nautilus Drive.

   City Council also considered a fourth proposal to repurpose vehicle lanes along 55th Street between Pearl Parkway and Arapahoe Road and decided to put that project on hold. The city will be conducting additional research and community outreach in response to council feedback about 55th Street.

   Phase II of the Living Lab pilot projects will be installed in phases. Folsom Street is the first corridor, scheduled for installation in July 2015. City staff will perform an evaluation/assessment for four weeks along the Folsom Street corridor and then check in with the Transportation Advisory Board and City Council prior to the proposed installations along the Iris Avenue and 63rd Street corridors. This phased approach will allow the city to carefully monitor conditions and respond to any unintended consequences. The outcome of the Folsom Street assessment will inform potential adjustments or changes to this and other pilot project installations. If the city proceeds with the other installations, it is anticipated that the Iris Avenue pilot project will be installed approximately four weeks after the Folsom Street project. The 63rd Street project will then be installed approximately four weeks after the Iris Avenue project.

On July 8, 2015, staff will update the TAB on the status of work to date, including community outreach and the evaluation schedule. The update will include a discussion about the baseline data that will be used in determining metrics for performance evaluation.

Throughout the duration of the Living Lab Phase II pilot projects, staff will provide monthly updates to the TAB at its regular meeting. The TAB generally meets on the second Monday of the month at 6 p.m. in Council Chambers, located on the second floor of the Municipal Building at 1777 Broadway. Community members are welcome to speak during the public participation portion of the meeting. City Council will receive a copy of the materials provided to the TAB, as well as meeting minutes.

Additionally, staff will update council on the Living Lab Phase II projects at study sessions scheduled for Aug. 25, 2015 and the first quarter of 2016 as part of the check-ins on the Transportation Master Plan implementation. Results of the pilot projects are expected to be presented to the TAB and council in fall 2016. The ongoing evaluation, community feedback, and reporting of performance measures will help guide decision-making about whether the pilot projects are working as planned and/or if they need to be refined or discontinued.

3. Are there check-in points throughout the project with metric thresholds that call for undoing the experiment in case things don't go as expected?

The city understands that there are community concerns about possible consequences and negative impacts. As a result, staff has built in several evaluation points at which the corridor projects could be modified or discontinued, if appropriate. Following the installation of each pilot project, staff will collect data and report results at the one month, three month, six month, and twelve month milestones, based upon the evaluation criteria listed in the following answer.

4. What metrics are being monitored to determine the success or failure of the project?

The city will use a variety of evaluation criteria to measure the results of the Living Lab pilot projects, in alignment with the city's transportation and sustainability goals. City staff has collected baseline data that will be compared with the Living Lab results. An initial list of Living Lab Phase II criteria is shown below.

- Overall traffic safety record and types of collisions
- Vehicle volume and speed
- Corridor travel time
- Traffic displacement/diversion
- Average daily traffic
- Intersection level of service/capacity analysis
- Bicycle volume and demographics
- Overall facility maintenance

Additional criteria will be used following the project installations, including:

- Emergency response times;
- Right-turn treatment and turning conflicts;
- Left-turn queue lengths; and
- Transit operations and bicycle interactions.

User experience is a vital component of the Living Lab evaluation process. The city encourages input from residents, bicyclists, pedestrians and motorists on the impacts – positive, neutral or negative – that these projects are having on their ability to get around Boulder. Community input, along with the technical transportation analyses, will be used to determine whether these types of

street treatments are an effective way to help the community achieve its goals for safer streets and a more sustainable transportation system.

What constitutes success or failure will be determined collectively based on community feedback and the results from the ongoing technical analyses. These results will be reviewed by the city's Transportation Advisory Board and City Council. Staff anticipates general increases in bicycle ridership and overall safety, decreases in traffic collisions, minimal travel delays for motor vehicles, and improvements to the pedestrian experience. Success may amount to any combination of the above characteristics, and will be measured holistically and in comparison with the TMP goals and measurable objectives. Technical data was gathered as part of the initial assessment of the candidate corridors considered for the Phase II lane repurposing projects. This data is presented in a Multimodal Technical Analysis Memo. This analysis, coupled with community input received during the spring 2015 public engagement process, shaped the Project Evaluation Criteria**.** All of these documents are available online at www.BoulderLivingLab.net

5. What is the status of the proposed 55th Street lane repurposing pilot project?

On June 15, 2015, the Boulder City Council considered a staff proposal for a pilot project that included vehicle lane repurposing along 55th Street from Pearl Parkway to Arapahoe Road. The proposal was tabled by City Council. Council members expressed interest in conducting additional research and more community outreach. Specific concerns included the possibility of motorist delays associated with train traffic in this area. Staff will develop a proposed scope and schedule of this additional work for future council consideration.

6. How do I provide input on the pilot projects?

7. User experience is a vital component of the Living Lab evaluation process. The city encourages input from residents, bicyclists, pedestrians and motorists on the impacts – positive, neutral or negative – that these projects are having on their ability to get around Boulder.

We're interested in feedback throughout every stage of this project. Some of the ways that you can share your perspective are described below.

- *Participate in a walk, bike or drive audit* – These interactive forums offer an opportunity to experience the various conditions present for each travel option during the pilot project. Participants will travel along the pilot project corridors and make occasional stops to discuss and share their user experience with each other.
- *Attend a public meeting* – The project team is scheduling public meetings in August and September 2015 to gather initial feedback on user experience.
- *Sign up for the GO Boulder email newsletter* – Community members interested in receiving periodic email updates about the Living Lab program, including upcoming engagement opportunities throughout the pilot project duration, can sign up for this email list.
- *Share input on the city's Inspire Boulder website* - This 24-hour digital town hall enables community members to share and discuss ideas about city projects, services and programs.
- *Upload a photo and comment on Boulder Commonplace* – This geographically based community engagement map allows you to share your thoughts about getting around Boulder.

Visit www.BoulderLivingLab.net for more details, a schedule of events, and additional opportunities to provide input. Community input, along with the technical transportation analyses, will be used to

determine whether these types of street treatments are an effective way to help the community achieve its goals for safer streets and a more sustainable transportation system.

8. **What is the advantage of getting people to ride bikes on these roads when we have separated bike paths?**

   Community input received during the 2013-2014 update to the Transportation Master Plan identified community concern about conflicts between bicyclists and pedestrians on multi-use paths. A resulting action item was to provide better separation between bicyclists and pedestrians. Cyclists also have expressed a concern about sharing the roadway with motor vehicle traffic, particularly as vehicle volumes and speed limits increase. Buffered and/or protected bike lanes were identified as innovative roadway design treatments being implemented by communities throughout the U.S. and are endorsed by the National Association of City Transportation Officials (NACTO) and the Federal Highway Administration (FHWA) as a best practice to improve safety, comfort, and access for all travel options. Boulder community members have also shared safety concerns about using multi-use paths when it is dark, in isolated areas, or during floods. Providing both on-street and off-street options is a way to serve a wide array of cyclists at different times of the day and/or seasons.

9. **What benefits do these pilot projects provide for pedestrians?**

   Buffered and barrier-protected bike lanes improve the pedestrian experience by increasing the distance between vehicle travel lanes and the sidewalk. It is also anticipated the pilot projects will improve safety and comfort for pedestrians by slowing vehicle speeds along the pilot project corridors and shortening the distance for pedestrians crossing these streets. Drawing from research conducted by Portland, Oregon, it is estimated that up to 60 percent of cyclists are concerned about sharing the road with, and seek better separation from, motor vehicles. National best practices indicate that installing buffered and barrier-protected bike lanes improve comfort and encourage new riders, which would reduce the potential for bicyclists riding illegally on sidewalks along Folsom and the east side of 63rd Street, as well as on sidewalks that are too narrow to accommodate both cyclists and pedestrians, which includes sidewalks adjacent to neighborhoods along Iris Avenue.

10. **What are protected and buffered bike lanes?**

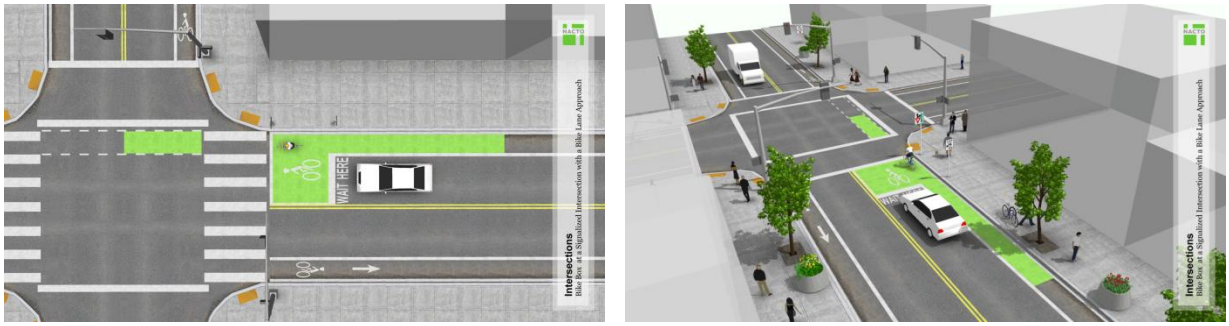
    Buffered bike lanes are conventional bicycle lanes paired with a designated buffer space separating the bicycle lanes from the adjacent motor vehicle travel lanes. Protected bike lanes add vertical separations (such as flexible delineators) within the buffer space to physically separate the bicycle lanes from the adjacent travel lanes.

Buffered Bike Lane

Protected Bike Lane

11. What is a bike box?

A bike box is a designated, painted area at a signalized intersection that places bicycles at the front of the waiting queue. Bike boxes increase the visibility of bicyclists and allow them to enter/clear the intersection before motor vehicles. Motor vehicles must wait behind the box and are prohibited to turn right on red. After all bicycles have left the green box and bike lane, motor vehicles may proceed through the intersection or turn right.



Source: http://nacto.org/publication/urban-bikeway-design-guide/intersection-treatments/bike-boxes/

12. How will bus/bike interactions addressed at bus stops?

The buffered bike lanes that pass through bus stops will be designated with striped paint markings. The buffered bike lane width also provides more space for buses to stop and queue outside the vehicular travel lane. Vertical separations in the protected bike lanes will be discontinued for an adequate distance before, through, and after the bus stops to allow buses to pull to the curb and back out into the travel lane. With the proposed lane configurations, transit operations will function similarly to how they function today. Buses must yield to bikes in the bike lanes. Bicycles and drivers may pass a stopped bus on the left.

13. What consideration has been given to the accommodation of emergency vehicles?

Transportation Division staff developed the pilot project corridor designs in coordination with the Boulder Police and Fire departments. For 63rd Street, the only bike lane delineation planned is painted markings on the roadway. Cars will still be able to pull over to the right and move into the buffered bike lanes to allow an emergency vehicle to pass them. As a result, there is no expected impact on emergency response times or access by emergency vehicles.

The Folsom Street and Iris Avenue corridors will have flexible delineators in the protected bike lanes, so vehicles will need to pull over as far to the right as possible so that emergency response vehicles can pass them using the center turn lane. The Boulder Police and Fire departments believe that the use of the center turn lane will meet their needs, but this is an issue that will continue to be evaluated. As an example, Arapahoe Road between Broadway and Folsom Street operates in this fashion today (one lane in each direction with a center turn lane that emergency vehicle can use to pass traffic). Another possibility to consider is that similar street treatments in other communities have reduced traffic collisions, resulting in fewer calls for service by emergency vehicles.

14. How would these road reconfigurations affect an emergency evacuation?

The Living Lab projects will use signing, striping, flexible delineators, and other temporary treatments. No physical or permanent barriers are planned. In the event of an emergency evacuation (or other type of emergency condition), emergency response teams can direct traffic as needed by using the full street width in a variety of ways. This also would be the case for conditions such as

lane impacts from accidents and accident investigations, out of service vehicles stopped in the roadway, and closures or unusually high traffic caused by special events**.**

15. **Would snow removal increase to clear the bike lanes and pedestrian sidewalks throughout the duration of the pilots?**

    Yes, snow removal will be increased to keep the buffered and protected bike lanes clear of snow. The city is currently developing a network of bicycle routes that bicyclists can rely upon during snowy conditions, and the proposed Living Lab buffered and protected bike lanes will be part of this network. Pedestrian sidewalks are the responsibility of the adjacent property owner, and should not be expected to be cleared by the city as a part of the experiments.

16. **Do other cities that have adopted this approach have regular snow in winter? What have they done to accommodate bicycles in winter?**

    Yes, cities such as Denver, Minneapolis, Chicago, New York, and Cambridge have installed protected bike lanes. These cities make concerted efforts to clear the bike lanes of snow, ice, and debris. A People for Bikes article, *How to Stop Snow from being Bike Lane Kryptonite*, provides case study examples of best practices. The City of Boulder is drawing from the experience of these other cities as part of the Living Lab program.

17. **Is a budget included in the project for undoing the experiments?**

    In the event that the pilot projects need to be reverted to the original lane configurations, the funds to do so will be budgeted in the 2016 transportation budget.

18. **What level of heavy truck traffic do these roads have? Do those large vehicles require special consideration?**

    All of the proposed Living Lab corridor projects are designed to accommodate large vehicles, including trucks and buses. As part of the evaluation process, the potential impact of large vehicles will be monitored and if needed, design modifications can be considered to address any concerns that arise.

19. **There is a multi-use path on the west side of 63rd Street. How does an on-street bike lane fit in with the pilot?**

    The Transportation Master Plan (TMP) identifies on-street bike lanes along 63rd Street. Currently, there is a missing link between Gunbarrel Road/Nautilus Drive and Lookout Road. The pilot project would install the on-street bike lanes within this section, which will close this gap in the on-street bike system. The on-street bike lanes are not feasible without repurposing vehicle lanes or a major capital improvement project. A multi-use path is a good bicycle facility for some users, but to enhance safety for slower-moving pedestrians on multi-use paths, on-street bike lanes are the more appropriate bicycle facility.

    The pilot projects will test buffered bike lanes, evaluate the impacts to motor vehicle travel times along the corridor, and assess delays for vehicles turning left onto 63rd Street from side streets. Staff anticipates minimal, if any, travel time delays during weekday peak travel times along the corridor and equal or fewer delays for vehicles turning left onto 63rd Street.

20. **How are the pilot projects being evaluated?**

    Qualitative and quantitative performance measures are being used to evaluate the potential for the long-term application and appropriateness of each pilot project treatment in Boulder. Technical traffic data, observational surveys, and community feedback about the user experience will help the city determine how the pilot projects are affecting safety and comfort for all transportation system

users. Technical data gathered as part of the initial assessment of the candidate corridors considered for Phase II lane repurposing projects is presented in a Multimodal Technical Analysis Memo. This analysis, coupled with community input received during the spring 2015 public engagement process, shaped the Project Evaluation Criteria**.** All of these documents are available online at www.BoulderLivingLab.net

There will an ongoing evaluation of the installed pilot projects. Results will be summarized and will guide policy decisions about street treatments to consider including in the city's design standards. Visit www.BoulderLivingLab.net for updates on what's been learned about each treatment currently being tested.

21. Will vehicle traffic counts be monitored on side streets throughout the experiment? Are there baseline metrics available for comparison?

Measuring the quantity of vehicle turning movements from the Living Lab corridors onto side streets will help city staff determine whether traffic diversions are occurring. Baseline data has been collected for these turning movements.

22. If there is a reduction in the volume of vehicle traffic, would we have the metrics to indicate where that traffic volume went?

As part of the overall evaluation, staff is conducting a before/after analysis of traffic volumes on side streets, such 16th and 19th streets from Iris Avenue, as well as others. This analysis will help staff determine whether vehicle traffic is being diverted to adjacent streets.

23. These roads were deemed ideal for the pilot because they carry 15,000 to 20,000 cars per day. How does this translate to cars per hour? How would the equivalent rates during rush hours compare to status quo travel times?

The technical analyses performed on all four corridors included the peak travel hour conditions. The results indicate that additional vehicle traffic delays along these corridors during this time would be relatively small. On the Folsom Street corridor, the anticipated delay is 78 seconds; on Iris Avenue the anticipated delay is 12 seconds, and there are no additional delays anticipated along the 63rd street corridor.

24. Will potholes and other irregularities that currently affect traffic flows be remedied prior to the pilots?

Potholes and roadway irregularities along the proposed candidate corridors will be repaired and maintained prior to the new lane configurations.

25. In choosing the pilot streets, what consideration was given to bike route/path linkages at the end points of the proposed routes?

The pilot projects were selected using a variety of criteria and are intended to enhance Boulder's "Complete Streets" network. Some of the proposed corridors connect and augment the off-street, multi-use path connections, creating options for use by different types of cyclists as well as use during different seasons and/or times of the day.

26. What changes have occurred in traffic flow analyses between now and when Iris Avenue was first increased from two to four lanes?

Staff is not sure if or when Iris Avenue (in the area being discussed) changed from two lanes to the four lanes that exist today. A historical traffic count location on Iris Avenue east of 19th Street provides yearly traffic count data going back to 1983. At that time, the daily traffic count was approximately 17,600 vehicles per day. This number grew over the next few decades and peaked at

approximately 25,400 vehicles per day in 2007. The volume has decreased since then and is currently estimated at approximately 23,400 vehicles per day.

The desire for a more comprehensive data collection and monitoring system before, during, and after installation is one reason that staff is now using the Living Lab approach for these corridors. Through this more systematic analysis and documentation process, the city and Boulder community can develop a more thorough understanding of the implications of installing different design treatments, and the lessons learned can be applied to future corridor projects, as appropriate.

27. Has staff considered increasing the frequency of the 208 bus for some portion of the pilot period?

Staff has not considered increasing the frequency of the 208 bus line; however, if City Council would like to explore this option, the city could do so in coordination with RTD.

Per the additional request from council, staff has received information from RTD regarding the cost to create a fare-free transit access for route 208. Based on initial information from RTD staff, the cost for this would be approximately $80,000 per year. The city would be responsible for buying up the fares equivalent to the cost of this revenue. The decision about whether or not to support this expense has not been decided, and will be a future item considered by the Transportation Advisory Board and City Council.

28. If 28th Street were closed for some emergency, would Folsom Street function adequately as an alternate route?

No single roadway would be able to efficiently process the added traffic of 28th Street if that roadway were closed. However, Folsom Street could function as one alternate route, in addition to 19th Street, 30th Street and Foothills Parkway.

29. Table Mesa Drive was repurposed from four lanes to two lanes (plus a center turn lane and bike lanes), as was Broadway near Norwood Avenue. Does the city have before/after data on these previous rightsizing projects?

City staff has not performed before and after studies on either of these two corridors. Anecdotally, staff has not found any operational issues resulting from either lane repurposing project. These were examples of locations where there was excess capacity and removing it does not appear to have resulted in increased travel delays along the corridor. Staff does not know if these projects resulted in an increase in cycling or a decrease in crashes in the corridor.

The desire for a more comprehensive data collection and monitoring system before, during and after installation is why staff is using the Living Lab approach for these pilot projects. Through this systematic analysis and documentation process, the city and Boulder community can gain a more thorough understanding the implications of installing different design treatments, and the lessons learned can be applied to future transportation projects, as appropriate.